CLINICAL RESEARCH

Violence and psychosis

I—Risk of violence among psychotic men

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Abstract

A survey of the records of 1241 men remanded in prison on criminal charges over four months yielded a high prevalence of psychiatric disorder. Of the total prison intake of 2743 men over the same period, 246 (9·0%) showed major symptoms of psychiatric illness and a further 237 (8·6%) symptoms of withdrawal from drugs or alcohol. Symptoms of neurotic disorders were under-recorded, so in terms of diagnosis 237 men (8·7%) were considered to be psychotic. Of these, 166 (70%) were schizophrenic. The influence of affective psychosis was small.

The risk of violence among men with schizophrenia was high. Twenty five (9%) non-fatal personal assaults and 24 (21%) offences of damage to property were committed by men with schizophrenia. The presence of mental illness probably influences the decision to remand in custody for some of these offences, but this is unlikely to explain the substantially higher prevalence of schizophrenia among men convicted of homicide (five (11%)) and arson (six (30%)) than would be expected in the general population of Greater London (0·1-0·4%). The prevalence of schizophrenia among men convicted of homicide may even be an underestimate, as may the prevalence of affective psychosis and possibly of other psychiatric abnormalities, given the substantial incidence of concurrent suicide in such men.

Introduction

There are three conflicting hypotheses about the risk of violence among psychotic people—namely, that the prevalence of violence among psychotic people is similar to, higher than, and lower than that among the general population. There is support for each hypothesis.[1] Such a confusing picture arises partly because of the way in which subjects have been selected for study. People imprisoned for homicide, for example, have often been studied to the exclusion of other violent offenders, but people who kill are often unusual in their violence. Samples of prisoners showing wider ranges of violent behaviour have usually been drawn from among sentenced prisoners. Sentencing is a powerful selection process, and most psychotically ill people are excluded from prisons at this stage. Conversely, samples drawn from hospitals tend to exclude most seriously violent people. The range of violence and the range of mental illness are perhaps least restricted in English remand prisons. We therefore examined the prevalence of violence and mental illness and the relation between the two in a large remand prison in London.

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Subjects and methods

THE SOURCE OF THE SAMPLE

We studied men remanded to Brixton prison in south London. It is the largest remand prison in Europe. At the time of the study it had an intake of 8000-9000 new prisoners in one year and roughly 1100 inmates at any one time, of whom substantially fewer than 1% were convicted men (the convicted men were not included in the study). The prison serves about a third of the population of England, taken from the area in and around Greater London. At the time of this survey all men charged with murder in this area were initially remanded to Brixton, although boys aged under 16 were transferred to another remand centre within 24 hours and a small proportion of the rest were subsequently bailed. Admissions otherwise were generally limited to men over the age of 21 and constituted almost all of the custodial remands for the area. One important reason for a custodial remand is to conduct a medical and social assessment. For at least five years before this study 2000-3000 medical reports were prepared by the prison medical staff each year.

The population of Brixton prison had several disadvantages as a source for our study sample. It was exclusively male and, because it consisted only of men imprisoned on criminal charges, it was not necessarily representative of any other group or setting. In many cases the decision to charge a person with a criminal offence is

arbitrary in itself; so is the decision to remand in custody, which may be as powerfully affected by such factors as whether the offender has a stable address as whether he is dangerous. Nevertheless, the advantages of such sampling outweighed the disadvantages. The men imprisoned in Brixton prison certainly showed a full range of violent behaviour and of mental disturbance.

THE SAMPLE

The sample was drawn from men remanded to Brixton prison during every third month of the first year of the study (June, September, and December 1979 and March 1980). Men entering the prison consisted of men who were starting their first period of custodial remand and others who were merely returning to continue detention after preliminary court hearings. Only the first category of prisoner was included. Altogether there were 2743 such men. We restricted our study to two overlapping categories—namely, all men charged with violent offences and all men held in the prison hospital or hospital wing. Our sample thus consisted of 1241 men. Allocation to the hospital areas of the prison was determined partly by the nature of the charge—for example, all men charged with murder or manslaughter were initially sent to the hospital areas. Some of the men charged with other violent offences were also held there. Most were allocated as a result of a brief examination by a prison medical officer on arrival at the prison.

COLLECTION OF DATA

A check list was developed specifically for this study. On this was recorded each man's age, ethnic origin, marital state, and whether he had a home, in addition to details of his charge, conviction, sentence, previous convictions, and medical diagnosis and history. After a pilot study we removed from the list those items that had less than a 50% chance of being answered from information in prison records. The check list for each of the 1241 men was completed solely from prison records by one of us (PJT) and an assistant and checked by PJT.

RELIABILITY OF THE CHECK LIST

The check list was also used to screen men passing through the Brixton hospital areas over a period of 20 months to select a sample of psychotic violent, psychotic non-violent, and non-psychotic violent men for a different but related study.[2] This screening produced a sample of 203 men of whom 56, by chance, were also included in the sample of 1241 described here. Their mental state, psychiatric history, and social and criminal histories were assessed at interview from self rating scales and from independent data, including hospital records and official criminal records. Diagnosis was according to the criteria of the *International Classification of Diseases*,[3] with the proviso that the prisoners with schizophrenia should have been ill for at least six months. When all the detailed evaluations were complete, in most cases 18 months after the first recording, the check list was completed again by the researcher without reference to the original check list but using all possible information available from the extended study. The data from the two sets of check lists were then compared.

There were almost no discrepancies in simple demographic data such as age, nationality, charge, conviction, and sentence. Recording was virtually complete by both systems. Historical data presented the greatest difficulty: information about previous offending or psychiatric or social history was considerably more likely to be missing from prison records than from our records. In most categories just over one third of the data were missing from prison records, which nevertheless usually yielded a proportionately representative picture—for example, for those men receiving definite ratings the prison records showed that 52 of 140 (37%) had previously been convicted of violence against other people compared with 77 of 203 (38%) according to our records.

The only important information for which prison records were thoroughly unreliable was that about suicidal behaviour (table I). Despite the attempt to exclude from the check list items that gave less than a 50% return, for over half the men data on this item were not available from the prison records. It was the most difficult information to obtain. Our detailed study of the 203 men still left some doubt about the suicidal record of 21 (10·3%) of them. In addition, the prison case notes contained only the information that prison medical officers had written down. As the turnover of men was high the prison doctors doubtless did not record some of the data they collected, particularly negative data. Most positive responses to questions, however, were probably recorded, and, by this criterion, 33 out of 71 (46%) of the histories of suicidal attempts were missed.

TABLE I—*Comparison of records of suicidal history made by prison officers with those made by us in 203 men. Figures show numbers of patients for whom records were made*

	Records made by prison medical officers			
	History of suicide	No history of suicide	Data unrecorded	Total
Records made by us:				
History of suicide	36	2	33	71
No history of suicide	8	35	68	111
Unable to trace information	2	3	16	21
Total	46	40	117	203

The role of alcohol or drugs in offending went unrecorded by the prison medical officers in nearly two thirds of the men. They noted intoxication at the time of the offence in fewer than half of the cases identified by our research interviews and background assessments. This apparent lack of attention to an issue that might be relevant to long term management probably occurred because the main purpose of many evaluations by prison medical officers is to provide, rapidly, reports for the courts. Intoxication is not a defence in law except under special circumstances, and in this context the pressure is against generating comment. By contrast, there was good agreement on the role of psychiatric symptoms in the presenting offence (table II).

TABLE II—*Comparison of records made by prison medical officers and those made by us of activity of symptoms in 203 prisoners. Figures indicate number for whom records were made*

	Records made by prison medical officers			
	Symptoms active at time of offence	No symptoms at time of offence	Uncertain about activity of symptoms	Total
Records made by us:				
Symptoms active at time of offence	114	17	6	137
No symptoms at time of offence	10	35	6	51
Uncertain about activity of symptoms	7	4	4	15
Total	131	56	16	203

Table III compares diagnoses recorded by the prison medical officers with those recorded by us. There was close agreement (74 out of 84 cases (88%)) on the diagnosis of schizophrenia and fairly good agreement on that of affective psychosis (20 out of 26 (77%)). There was agreement on allocation to one of the categories of psychosis for 114 of 121 (94%) cases, but there was not such good agreement for the non-psychotic subgroups. The prison medical officers were much less likely to diagnose the "softer" categories, which included depressive neurosis, substance abuse, and personality disorder. Again, for the prison medical officers this may reflect expectation of requirements for court reporting. There was good agreement about alcoholism and drug addiction. We recorded only two definite cases of subnormality and one of epilepsy in the series, but there was agreement over these and over the possibility of epilepsy in four further cases. The reliability of recording on the check list from prison records alone was thus high for all but historical data, the direct influence of alcohol on offending, and the diagnosis of neurotic disorders.

Results

PREVALENCE OF PSYCHIATRIC DISORDER

The prevalence of symptoms of psychiatric disorder on entry into prison was high (246 of the 2743 men remanded (9·0%) (data missing

TABLE III—*Comparison within major diagnostic categories of diagnoses recorded by prison medical officers with those recorded by us in 203 male prisoners. Figures show numbers of men for whom records were made*

	Prison medical officer diagnosis by Brixton prison medical officer					
	Schizophrenia	Affective psychosis	Other psychosis	Non-psychotic states or no diagnosis	Possible psychosis but no other definite diagnostic category	Total
Diagnosis by us:						
Schizophrenia	74	2	3	3	2	84
Affective psychosis	3	20	2*	1		26
Other psychosis	4*	1	5†		1	11
Non-psychotic states or no diagnosis	6	7		62		75
Possible psychosis but no other definite diagnostic category	2	1		1	3	7
Total	89	31	10	67	6	203

*These men had schizoaffective psychosis.
†Includes three men with schizoaffective psychosis.

TABLE IV—*Prevalence of psychiatric disorder by diagnosis in a sample of 2743 men newly admitted to remand prison*

Diagnosed condition	No (%) of men with condition
Psychosis*:	
Schizophrenia	166 (6·1)
Affective psychosis	33 (1·2)
Schizoaffective psychosis	8 (0·3)
Other psychosis	30 (1·1)
Total	237 (8·7)
Organic brain state*:	
Subnormality	24 (0·9)
Epilepsy	40 (1·5)
Other brain damage (dementia)	26 (0·9)
Total	90 (3·3)
Addiction*:	
Alcoholism	113 (4·1)
Drug dependency	147 (5·4)
Total	257† (9·4)
Neurosis*:	
Depressive neurosis	67 (2·4)
Other neurosis	24 (0·9)
Total	91 (3·3)
Personality disorder	379 (13·8)

*Categories of psychiatric disorder were not necessarily mutually exclusive but diagnostic statements within those categories were.
†Three patients showed dependence on both drugs and alcohol.

for 112 cases)). Men were defined as being addicted to alcohol or drugs only if they showed some symptoms of withdrawal after admission; 237 men (8·6%) (data missing for 54 cases) were so defined. A few men who showed symptoms of withdrawal were also diagnosed as having another condition, but, as withdrawal states occasionally mask other disorders, men were regarded as falling into both categories only if their symptoms persisted beyond the first week of admission. There were 23 such men (0·8%). A total of 506 men (18·4% of the total new intake) were thus rated as having major symptoms on arrival at the prison. There is no doubt that many symptoms of neurosis were not recorded and that some men with such abnormalities and a few with residual psychotic states would have been placed in ordinary (non-hospital) locations. Unless they had been charged with a violent offence these men would thus have been omitted from our sample. Ours, then, is a substantial underestimate of total psychiatric symptomatology.

Table IV shows the degree of psychiatric disturbance by diagnosis. Following from what has been said above about where men were placed in the prison and the reliability of prison medical officers' diagnoses the estimates for psychosis, organic brain states, and addiction probably come close to showing the true prevalence of these disorders in the prison. The estimates for neurosis and personality disorder, however, are unlikely to reflect the true prevalence. Two hundred and thirty three (8·5%) of the sample were also noted to be abusing drugs or alcohol without signs of dependency. This similarly probably represented a fraction of the size of the problem.

RELATION BETWEEN DIAGNOSIS AND VIOLENT OFFENDING

Table V shows the relation between psychiatric diagnosis and violent offending, giving the numbers of men charged with and convicted of various offences. This difference between the numbers of men subsequently convicted and numbers held in custody on charges was only partly accounted for by acquittal at court. For about 90 cases information about conviction could not be traced within the time available. The proportion of men by diagnosis within these categories of offences committed was almost identical whether calculated in terms of charges or convictions.

As expected the men surveyed showed a full range of violent behaviour, from the trivial to the serious, in association with a full range of mental states, from the apparently symptomless to the floridly psychotic. Within our sample serious personal and life threatening violence was much more commonly committed by psychiatrically normal than by disturbed people. The pattern was similar for the carrying of offensive weapons. Arson and other violence directed primarily against property was, by contrast, more commonly committed by psychiatrically disturbed men. Only seven (35%) and 64 (39%) of these offences respectively were committed by men who had been judged normal. Even within the categories of violence directed at other people, however, in which normal subjects predominated, the degree of psychiatric disturbance was high. Of men charged with homicide, just over one third were psychiatrically abnormal. Five (11%) of the convicted offenders were schizophrenic. On 31 December 1974 in Camberwell, an area of London typical of that from which the prison population was drawn, the one day prevalence of schizophrenia in the general population was 198/100 000 (Wing JK and Fryers T, unpublished report, 1976). The one year prevalence is generally taken to be 0·4% (Wing JK, personal communication, 1982). The one year inception rate is perhaps the most

TABLE V—*Number (%) of men in a sample of 2743, categorised according to diagnosis, committing a violent offence*

	Violence directed at other people				Violence directed primarily at property			
	Homicide		Other violence		Arson		Criminal damage	
	Charged (n = 61)	Convicted (n = 46)	Charged (n = 383)	Convicted (n = 282)	Charged (n = 28)	Convicted (n = 20)	Charged (n = 181)	Convicted (n = 163)
Affective psychosis	1 (1·6)	1 (2·2)	5 (1·3)	3 (1·1)			6 (3·3)	6 (3·7)
Schizophrenia	5 (8·2)	5 (10·9)	28 (7·3)	25 (8·9)	9 (32·1)	6 (30)	36 (19·9)	34 (20·9)
Mixed psychiatric disturbance other than schizophrenia, affective psychosis, or pure personality disorder	15 (24·6)	13 (28·3)	90 (23·5)	65 (23)	9 (32·2)	7 (35)	66 (36·5)	59 (36·2)
No psychiatric disorder	40 (65·6)	27 (58·7)	260 (67·9)	189 (67)	10 (35·7)	7 (35)	73 (40·3)	64 (39·2)

relevant figure for comparison as it covers all new presentations and representations of schizophrenic people to medical services. This was 0·1% for 1974 (Wing and Fryers, unpublished report, 1976). The prevalence of schizophrenia among men committing homicide thus appeared to be appreciably greater than would be expected from the general population. The same was true among offenders who had committed violence against others with less serious consequences. Twenty five (9%) of the violent offenders were schizophrenic compared with the expected 0·4% or less.

Not all of the schizophrenic prisoners showed a "pure" form of the illness. Nearly half showed both florid symptoms and chronicity but had disorders complicated by other factors such as depressive episodes, alcohol abuse, drug abuse, or head injuries. The five homicides were committed by pure schizophrenics, but in the other groups shown the numbers of men with pure and complicated illnesses were about equal. Men with affective psychosis appeared to commit criminal violence of any kind only rarely. A detailed breakdown of other diagnostic categories was not attempted for this part of the study.

Discussion

Among men remanded to Brixton prison, we found that the proportion suffering from major psychiatric illness and other disorders was high, although it was almost certainly an underestimate of the true prevalence within the admission sample. The high prevalence of psychiatric disorder among some violent offenders was not entirely surprising. Previous studies of homicidal offenders in England and Wales have, for example, shown that about a third are psychiatrically abnormal,[4] and the figures from the present study are almost identical. There is no such direct comparison for lesser offenders.

Statistics for the numbers of psychiatric inpatients in Britain have been quoted with pride to show the declining need for mental hospitals. Eason and Grimes say that "at the end of 1954 before the new style of care had developed there were over 150 000 inpatients of psychiatric hospitals; by 1974 this had fallen to 95 000, the lowest figure since 1903."[5] Many psychiatrists and others have been critical of any pride in these figures. They suggest that numbers of beds occupied by patients with psychiatric disorders may be falling because former patients are being forced into less appropriate environments, such as reception centres[6] and prisons, rather than because psychiatric illness is being cured; prison medical officers in particular have been critical of this trend.[7] The prisons have had to offer psychiatric care to offender patients for many decades,[8] but few, least of all the prison doctors themselves, have regarded this as ideal. In 1934 Hamblin-Smith, a well known prison doctor and psychiatrist, wrote, "There are the strongest objections to combining the ideas of punishment and medical treatment: the subject is certain to look upon the treatment as a part of the punishment."[9] Most of the figures indicating the size of the problem have, however, referred to convicted offenders.

In Britain two studies on the same sample of 811 men serving prison sentences in 1972 agreed on the high prevalence of psychiatric disturbance even among convicted prisoners.[8 10] Only 26 men with schizophrenia (0·3% of the sample studied) were identified by prison doctors in the survey by Banks *et al.*[10] The prevalence of the more florid disorders, such as psychosis, is likely to be lower among sentenced men than among those awaiting trial as some cases will be removed at the sentencing stage. In the interview study of Gunn *et al* one man with schizophrenia and one with affective psychosis were found among 90 men.[8] The same study also estimated, however, through interview and questionnaire, that a third of convicted male prisoners have psychiatric disorders. Much of this was accounted for by neurosis, alcohol or drug related problems, and personality disorder. American studies on convicted prisoners have generally shown a similar picture,[11] although Roth and Ervin found the prevalence of psychosis among convicted federal prisoners to be as high as 8%.[12] The results of the present study of men on remand suggest a lower prevalence of neurosis and personality disorder, but, as we have emphasised, much of this kind of disturbance was not identified. This was perhaps inevitable given the high prevalence of more florid disorder requiring attention, but it may be too that neurotic disorders arise in some prisoners when they are in prison and that there are therefore real differences between remanded and convicted men in this respect. Most of the psychosis, addiction (but not abuse of substances short of addiction), and organic brain disorder was identified, and the prevalence of each was high. A minimum of 237 men (8·7% of the population) were psychotic, of whom most were schizophrenic.

Seventy eight (45%) of those with schizophrenia in the present study had been charged with some sort of violent offence, although not all of the violence was serious and most offending by schizophrenic men was trivial. This tends to imply that the population of this remand prison was unnecessarily inflated by the bringing of criminal charges against men who showed minor disturbances in behaviour but were ill and perhaps should have been in hospital. Nevertheless, our sample suggested that schizophrenic men are at greater risk than the general population of committing violence and even serious violence.

For some of the offences with less serious consequences, such as criminal damage, the figures for schizophrenia might have been artificially inflated by a tendency to remand the very sick preferentially in custody. The schizophrenic men, for example, were often without support and of no fixed abode. Having no fixed abode in particular is a common precipitant of custodial rather than non-custodial remand.[13] The proportion of schizophrenic men committing criminal damage might thus look different if the numbers of men charged but remanded on bail could be added to the numbers of men on custodial remand. A balancing effect is that many sick "offenders" are still dealt with without recourse to courts. Hospitals sometimes treat sick violent behaviour as a psychiatric emergency rather than as a criminal offence and may admit directly or receive an offender from the police, who may request a formal admission under section 136 of the Mental Health Act (1983) as an alternative to prosecution. An American group reported that 58 (18%) of 321 admissions for mental illness to a mental hospital had been preceded by physical violence and a further 58 (18%) by threatening behaviour.[14] Only three patients had actually been arrested. As much sick violence as non-sick violence may therefore never come to the attention of the police at all.

Few men charged with arson are permitted bail, and, in so far as any criminal charge indicates behaviour, our figures for arson are likely to give a representative picture of the association between firesetting and illness. At the time of the study all men committing criminal homicide in the Greater London area, even if they were subsequently remanded on bail or transferred to another prison, first entered Brixton. The figures for homicide thus may give a valid indication of the risk of the most serious schizophrenic violence; it appears to be more substantial than much previous research has implied. Even these figures, however, may be artificially low. West showed that a substantial proportion of those who kill others kill themselves.[15] The minimal appearance of affective psychotics among the sample of men charged with homicide may also, in part, be explained by this pattern. It may also have been influenced by the absence of women from this sample. Depressive homicide is one major offence category in which women greatly outnumber men.[16]

At first sight some of the results reported here seem to conflict with those found by Hafner and Boker in their comprehensive study of homicidal violence among mentally abnormal patients in West German hospitals.[16] They claimed that the mentally abnormal in general are no more likely, but no less likely, to commit serious violence than are the mentally normal. In that statement, however, they were lumping together the mentally ill, the mentally handicapped, and those with organic cerebral disorders. Furthermore, their own figures show clearly that, of 2996 men who committed homicidal violence during

the decade they investigated, 232 (7·7%) were schizophrenic and eight (0·3%) were suffering from affective disorders. (The corresponding proportions for women were 6·4% and 3·6% respectively.) These figures are close to the ones found here ($\chi^2=0·26$ for people with schizophrenia and 0·99 for those with affective disorders), which suggests that in Europe 5-10% of homicidal violence committed by men is perhaps accounted for by schizophrenia and ½-1% by depression.

At the beginning of this report we emphasised that any sample of violent and disturbed men might be representative of nothing more than that sample. Certainly these risk findings cannot be widely generalised, but in Europe the risk of schizophrenic violence should not now be underestimated. This may be related to current policies of discharging patients with schizophrenia from hospital or restricting their admission without, in many cases, the provision of adequate alternative care. Continuing to make insufficient provision may have increasingly serious consequences.

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Acute renal failure due to rhabdomyolysis associated with use of a straitjacket in lysergide intoxication

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Abstract

Acute renal failure is a known sequel to rhabdomyolysis, both traumatic and non-traumatic. Two patients who had been placed in straitjackets after taking lysergide (LSD) developed acute renal failure and rhabdomyolysis. One subsequently died.

The rhabdomyolysis probably resulted from a combination of severe restraint and the violent movements induced by the drug. The use of straitjackets cannot be considered to be completely safe in such cases.

Introduction

Rhabdomyolysis due to trauma, so called crush injury, is a well recognised cause of acute renal failure.[1] Non-traumatic rhabdomyolysis may cause acute renal failure after fits, prolonged coma, and viral myositis[2] and is also associated with overdoses of heroin, alcohol, and barbiturates.[3] We describe here two patients who had become violent after taking lysergide (LSD) and had been placed in straitjackets before admission to hospital. Both developed acute renal failure and rhabdomyolysis, as shown by a considerable rise in serum creatinine phosphokinase and uric acid concentrations.

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Case 1

A 19 year old white man became violent after taking lysergide, necessitating the use of a straitjacket. He was taken to the local hospital, where he was easily sedated with chlorpromazine. He had a right orbital haematoma and superficial cuts to the wrists and ankles with many superficial abrasions over his back. Over the next four days he became oliguric with rapidly rising plasma urea and creatinine concentrations. He was transferred to Charing Cross Hospital, where peritoneal dialysis was started. Initial investigations showed extremely high values of plasma creatine phosphokinase (45 000 IU/l, normal <90 IU/l), alanine transaminase (1690 IU/l, normal <35 IU/l), and urate (1155 μmol/l (19 mg/100 ml), normal 100-400 μmol/l (1·7-6·723 mg/100 ml)). Rhabdomyolysis was therefore diagnosed, and the findings on renal biopsy suggested acute tubular necrosis. Over the next few weeks his renal function spontaneously improved and he was eventually discharged with normal renal function. Two years later his renal function remains normal.

Case 2

A previously fit 25 year old white man had become violent after trying to jump off a roof having taken lysergide. He was restrained in a straitjacket and brought to Charing Cross Hospital at